# agricultural situation

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U.S. DEPARTMENT OF AGRICULTURE • STATISTICAL REPORTING SERVICE

## CROP FORECASTS: HOW ACCURATE?

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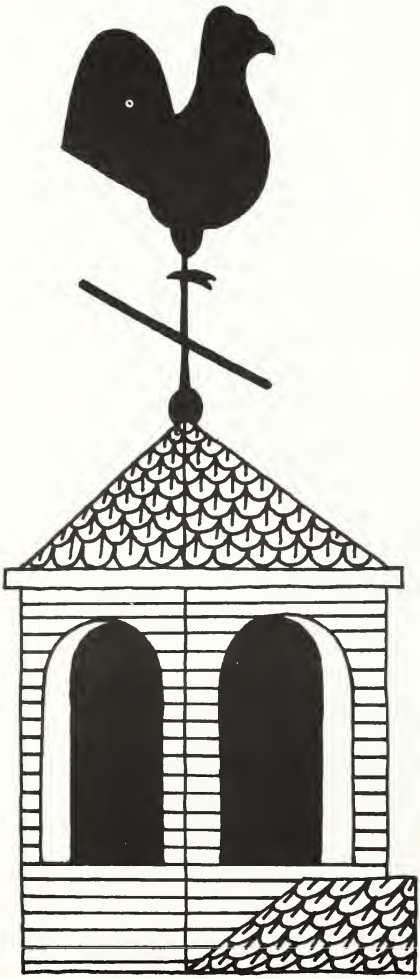


Tuesday, July 12, 1977 . . . *Within minutes after 3 p.m., EDT, the news flashed across the country and around the world: U.S. farmers are expected to produce a record 6.3-billion-bushel corn crop this year, according to a report issued today by the U.S. Department of Agriculture . . .*"

The corn production forecast was SRS's first for the 1977 growing season. It would be several months—and a lot could happen—before late fall when the corn harvest would be complete and the actual size of the crop known.

Such a time lapse triggers an obvious question: How accurately does SRS forecast the production of corn—or for that matter, any other commodity—while the crop is still in the ground?

Economist James P. Houck and research assistant Daniel Pearson at the University of Minnesota put this question to the test by comparing monthly production forecasts for corn and soybeans against actual output during 1963 to 1975.

The team chose these two crops for their importance to the U.S. farm economy. SRS starts forecasting corn production in July and makes its first estimate of the upcoming soybean crop in August. The forecasts, which run through November, appear in the monthly Crop Production report, which is released just before midmonth and reflects conditions at the beginning of the month.

The charts on pp. 4-5 track the monthly progress of SRS corn production forecasts during the 13-year period. (Note that there were no July forecasts during 1971-74.) The arrows at the end of the lines point to the actual production level for that year.

The panels show that in some years—such as 1964 and 1970—the

forecasts started off high and then gradually closed in on the final figure, reflecting a downturn in growing conditions.

In other years—1969 and 1972, for example—the early forecasts proved low in relation to the final crop estimate. But as growing conditions improved during the season, the forecasts crept up toward the final production figure.

And occasionally, conditions changed abruptly throughout the season, so that in tracking the crop's progress, the forecasts show several ups and downs before approaching the actual production level.

Acreage data that go into the crop forecasts are fairly firm by the time SRS first estimates the size of the upcoming corn and soybean crops in July and August, respectively. Therefore, most of the month-to month adjustments and occasional sharp reversals in expected production levels stem from changes in projected yields, which reflect pest and disease problems and changes in weather conditions.

Since these hazards generally cannot be anticipated, most of the difference between growing season crop forecasts and the final production estimate is not really an "error" in the sense that it could have been prevented by a better measurement. On the contrary, the difference results from largely upredictable forces.

For example, the chart for 1970 shows a large early overestimate. That was the year that corn blight stunned U.S. producers, forcing SRS to continually revise its estimates downward during the season as reports poured in of new, serious infestations.

In 1974 as well, the forecasts took an abrupt plunge late in the season after major corn areas suffered massive early frosts and poor weather at harvesttime.

The 13-year period saw roughly as many early season overestimates as underestimates, and Houck/Pearson found no indication that SRS tended to either overstate or understate its corn production forecasts.

Houck/Pearson also determined the maximum forecast error (as a percent of total production) for each season, and the month in which it occurred. Typically, errors were largest in July or August and then narrowed as the season progressed. The average *maximum* error for the 13 years combined worked out to about 7.2 percent above or below the actual output.

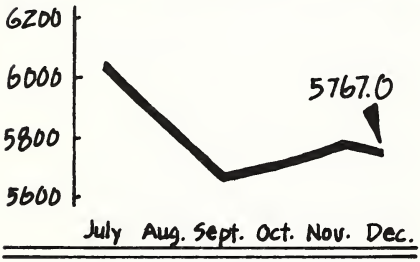
A look at the average error *by months* also shows how SRS corn production forecasts become increasingly accurate as the growing season progresses. During 1963 to 1975, the average monthly error declined steadily from a high of 6.5 percent for the first forecast in July to only 1.6 for the final forecast in November.

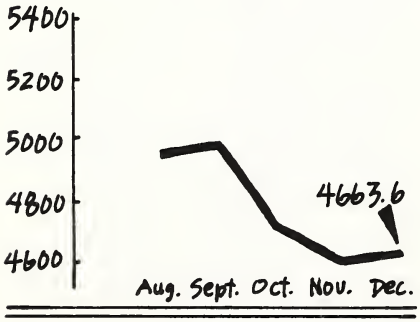
Charts on pp. 6-7 show that SRS also claims a good track record when it comes to soybeans. As a rule, soybean forecasts are subject to less revision than corn forecasts.

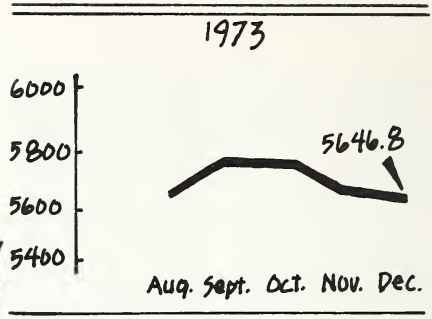
That's because soybeans are generally hardier and their yields fluctuate less from month to month. Therefore, once it's known how many acres have been planted, it's easier to come up with an accurate assessment of the soybean crop than the corn crop.

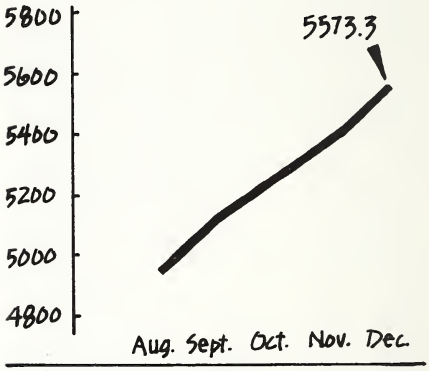
The figures bear this out: the average maximum forecast error for soybean production during the 13-year span came to less than 5 percent above or below actual output. As with corn, the average monthly errors shrink as the season progresses, indicating that the forecasts become increasingly accurate as the harvest approaches.

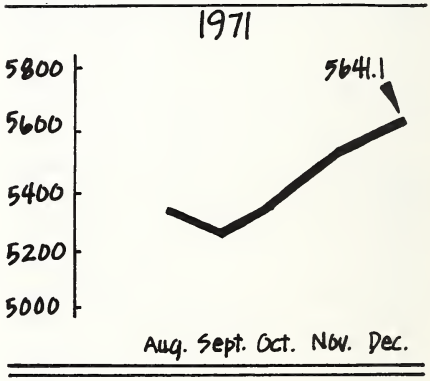

Indicated Corn Production (million bushels)


1975
6200
6000
5800
5600
5767.0
July Aug. Sept. Oct. Nov. Dec.

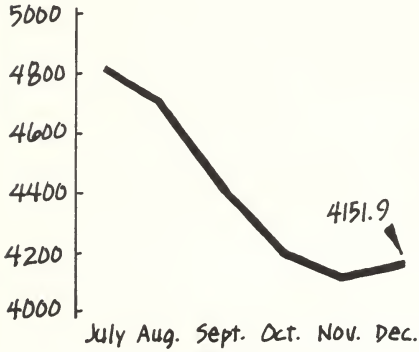

1974
5400
5200
5000
4800
4600
4663.6
Aug. Sept. Oct. Nov. Dec.


1973
6000
5800
5600
5400
5646.8
Aug. Sept. Oct. Nov. Dec.

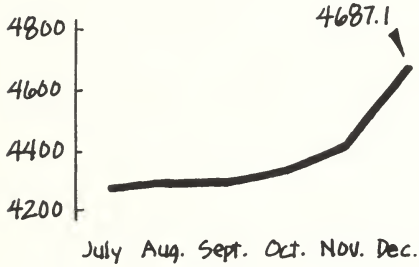

1972
5800
5600
5400
5200
5000
4800
5573.3
Aug. Sept. Oct. Nov. Dec.


1971
5800
5600
5400
5200
5000
5641.1
Aug. Sept. Oct. Nov. Dec.

1970

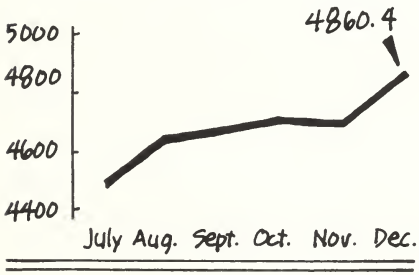



1969



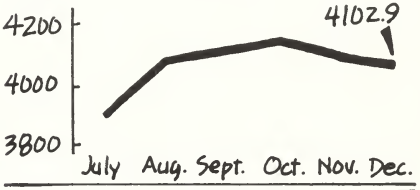

1968


1967

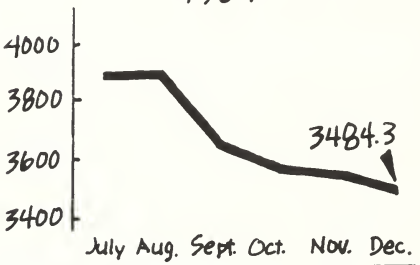



1966

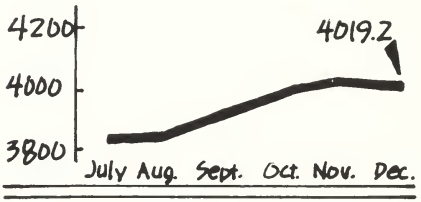

1965



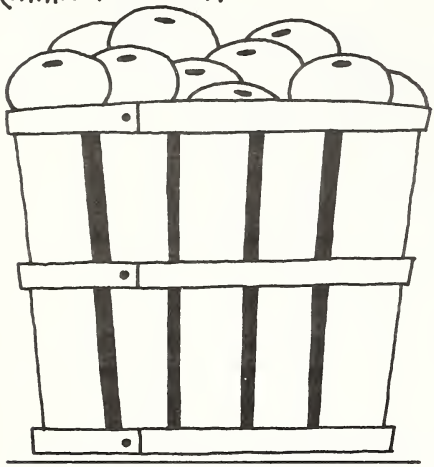

1964

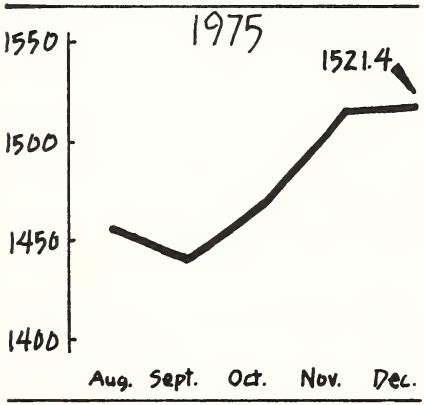


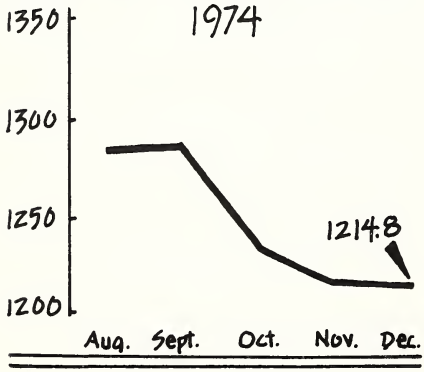

1963

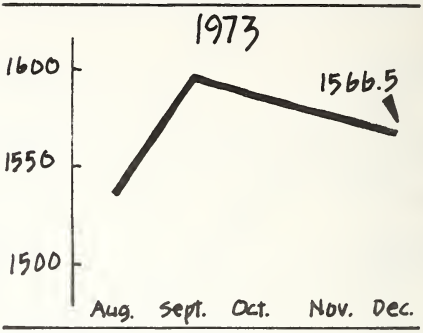


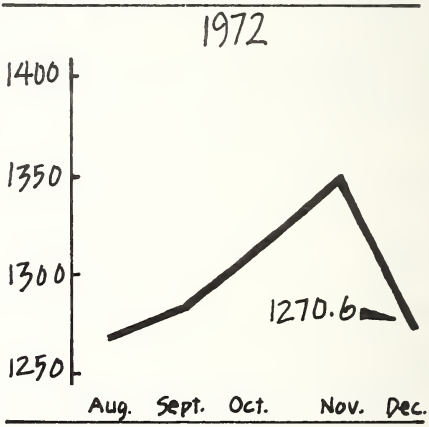
# Indicated Soybean Production (million bushels)

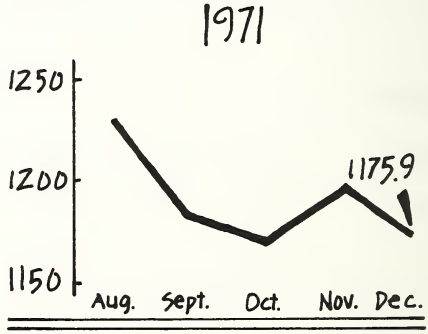


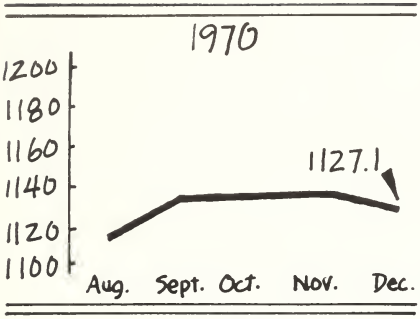


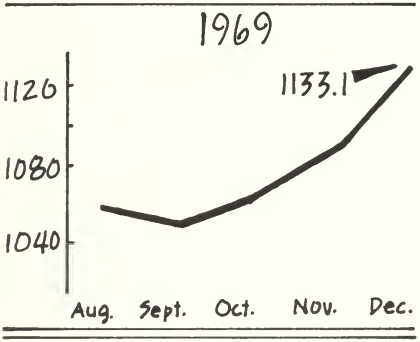



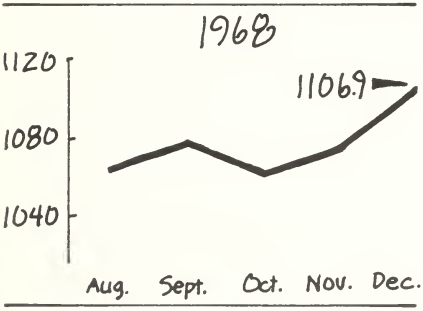




1970
1200
1180
1160
1140
1120
1100
1127.1
Aug. Sept. Oct. Nov. Dec.


1969
1120
1080
1040
1133.1
Aug. Sept. Oct. Nov. Dec.


1968
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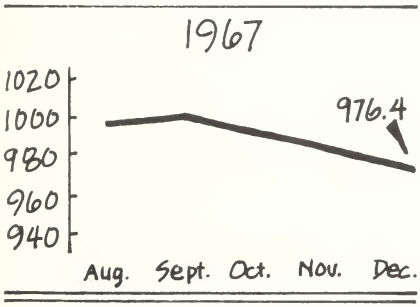
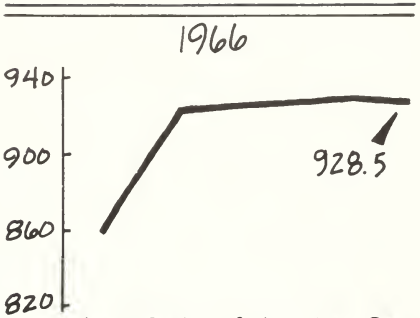
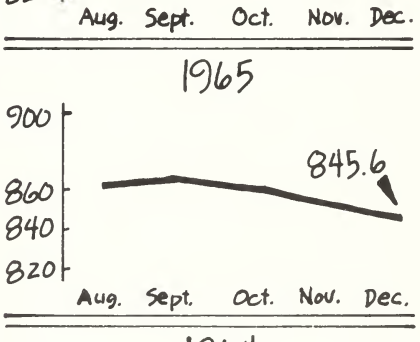
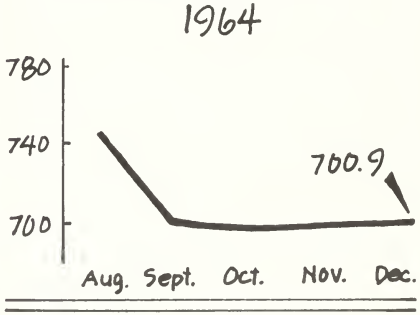
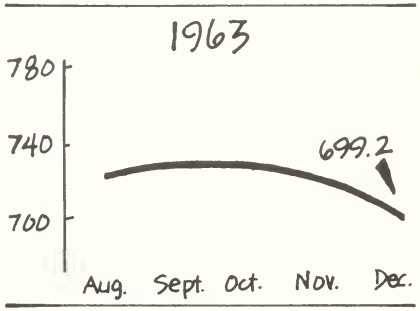
1080
1040
1106.9
Aug. Sept. Oct. Nov. Dec.


1967
1020
1000
980
960
940
976.4
Aug. Sept. Oct. Nov. Dec.


1966
940
900
860
820
928.5
Aug. Sept. Oct. Nov. Dec.


1965
900
860
840
820
845.6
Aug. Sept. Oct. Nov. Dec.


1964
780
740
700
700.9
Aug. Sept. Oct. Nov. Dec.


1963
780
740
700
699.2
Aug. Sept. Oct. Nov. Dec.

# INDIA'S NEW SURPLUSES


India, traditionally an outlet for U.S. grains, now has a sizable supply of its own to sell. This about-face strikes another blow to Western exporters currently staggering under the biggest wheat surplus in years.

The combination of bumper crops over the last 2 years and an unprecedented stockbuilding effort has left this Asian nation with grain reserves twice as large as any in the past.

According to USDA's Foreign Agricultural Service, favorable monsoon rains helped Indian farmers harvest a record 121 million metric tons of food grains during 1975/76 and take in their second biggest crop the following year.

India's plentiful stocks also stem from the massive imports that followed poor grain crops in 1974/75 and the year before. During the past 3 years, India imported around 18-20 million tons of grain—and watched its reserves shoot from around 2.5 million tons in 1974 to 22 million tons currently.

The Indian government hopes to reduce stocks to around 10-12 million tons, and has pulled out of the grain import market for at least this year and possibly next year as well. Such a move does not augur well for U.S. farmers, who last year supplied more than 75 percent of India's total grain imports valued at $937 million.

Meantime, Indian officials must address another problem: storage. Large-scale government purchases of food grain for internal distribution, heavy imports, and sluggish domestic sales have left India looking for places to stockpile its bulging reserves. FAS figures show 15 million tons in permanent storage while another 6-7 million sit outside in bags under tarps and polyethylene.

Exports to neighboring countries and the Soviet Union may provide a partial solution. In the case of the Soviets, India may draw on its soft wheat reserves to repay the remainder of a 2-million-ton loan from the USSR in 1973. Most of these shipments are likely to go to third countries for delivery on the Soviet account.

Easing additional food grain into Indian diets presents a more ticklish problem. If incomes were to rise substantially, the Indian population could take care of the surplus grain by simply increasing its consumption.

But as it is, Indians spend an estimated 60 percent of their earn-

ings for food—a situation that's not likely to change in the near future. Also, the government views mass-feeding projects with reluctance since they spell an outright loss of investment.

FAS is guardedly optimistic about India's ability to feed itself over the next few years. For the long term, the vagaries of the monsoon, so important to India's crops, and a population that grows by 13 million a year will continue to strain the development of a strong Indian agriculture.

# FOR TRUCKERS: WAYS TO SAVE

Keep those diesels on the road. A recent study by USDA's Economic Research Service (ERS) shows that, in most cases, the cost of shipping fruits and vegetables by truck gradually decreases as mileage increases. There's a catch though—delays in pickup, delivery, and backhaul can double the bill for short trips.

Trucks have taken the driver's seat in fresh produce hauling. They carried 84 percent of the load in 1975, up from 70 percent in 1970. ERS based its study on a model, 10-truck firm patterned from 1976 costs of nine companies in California, Texas, and Florida.

Some of the findings: *If the trip is short, bring her back quickly.* A 100-mile, one-way trip without backhaul costs 79¢ a mile. But if the truck is delayed 2 days waiting for a return load, the cost jumps to $1.69. However, the same 2-day delay for a 3,000-mile journey drives up costs only 2 cents a mile to 56 cents.

*No idling.* One of the easiest ways to cut costs per mile is to keep rolling. Putting 80,000 miles a year on one truck (44 percent of the driver-truck potential) costs 35 percent more than pushing the truck to its full potential—an estimated 180,000 miles a year.

# DIAL A COMPUTER

Air conditioned tractor cabs, automatic irrigation systems, and home-based computer terminals for instant crop and livestock estimates are all part of today's agriculture.

For a fee, firms and farms can plug into a nationwide commercial computer network for rapid access to a copy of the latest SRS report.

SRS data and text, after being set by the Crop Reporting Board, are transmitted at the standard SRS release time of 3 p.m., ET, to the computer release system in Chicago. Security measures prevent early access to the data which could give someone an unfair trading advantage on one of the Nation's commodity markets. Anyone with a telephone and terminal can dial up the system for a printout of current crop and livestock estimates.

Since such a sophisticated information link isn't practical for all in agriculture, SRS also works with the Extension Service, which takes off the latest facts and figures for use by its thousands of county agents and commodity experts at universities across the country.

The 44 SRS field offices serving the 50 States are also tied into the computer network. Much like national wire services passing along the latest news, SRS field staffs prepare local press releases and State summaries.

While this delivery system is geared to getting facts to farmers faster, the general news media is still a major source of information. The Crop Reporting Board's Washington, D.C., newsroom never lacks for reporters ready to meet press and broadcast deadlines with the latest agricultural data.

For further information on the computer network and quick access to SRS crop and livestock reports, write the Secretary, Crop Reporting Board, USDA-SRS, Rm. 0233 South, Washington, D.C. 20250.

# SURVEYSCOPE

***To give our readers a clearer picture of the vast scope of SRS activities, Agricultural Situation presents a series of articles on special surveys undertaken in various States. While these are not national surveys, they are important to the agriculture in individual States.***

"For many people, the mention of New York vegetable production may bring to mind vast 'gardens' stretching out across Long Island," says Glenn Suter, New York agricultural statistician.

"What they may not know is that a significant share of the State's important vegetable crops comes from several other major growing areas throughout New York known as 'mucklands.' Basically," Suter explains, "mucklands are swampy areas that had been shallow lakes back in the glacial period."

Over thousands of years, decaying plant materials from vegetation growing in the lakes built up dense layers of muck or peat. Glacial melt waters carrying large calcium deposits further enhanced the richness of these organic wastes, creating broad stretches of dark, moist, fertile land.

"The muck ranges in depth from a few inches to 20 feet and over," claims Suter, "though New York producers say 6 to 8 feet provide the best growing conditions. Onions are the dominant muckland crop, and New York ranks fourth in the Nation in total production.

The dark, rich soils of New York's mucklands contrast sharply with surrounding areas . . .

Other major muckland vegetables include potatoes, cabbage, lettuce, celery, carrots, and radishes. In addition, the State's muck areas supply hefty amounts of sod and peat moss.

Each year, Suter's office surveys the planted acres in New York's six major muckland vegetable areas. Enumerators visit these areas in late May and early June, observing field conditions and plotting what vegetables are growing where on maps traced from aerial photographs.

In late July and early August, when all planting has been completed, enumerators return to certain mucklands to check acreage not in production during the previous survey and to check sections that have been replanted. In Orange County, for example, producers routinely plant celery after harvesting their early lettuce crops.

Orange County, which sits in the southeastern part of the State bordering New Jersey, contains New York's biggest muck area. Enumerators visited this and adjacent areas in late May and found nearly 7,600 acres planted to onions, more than the other five areas combined. Acreage not planted was up nearly 50 percent from 1976, leaving a large area open for later plantings, mostly to lettuce and celery.

Onions also claimed the biggest share of all acres planted to vegetables in the other leading muck areas, although potatoes came in a close second in the Elba muck section in the northwestern part of the State. Elba growers had 2,208 acres in potatoes, up 6 percent from last year, while onion acreage showed a slight drop.

Other highlights: Farmers in the Oswego muck area planted 46 percent more lettuce than in 1976 and had newly cleared some additional acreage. In central New York's Madison area, onion acres were off 12 percent from last year, and potato acreage, down 38 percent. Roughly a third of Madison's total vegetable land had been planted to corn.

. . . and provide ideal growing conditions for cabbages and a host of other vegetables.

# Briefings

RECENT REPORTS BY USDA OF ECONOMIC, MARKETING, AND RESEARCH DEVELOPMENTS AFFECTING FARMERS.

**CHERRY NEWS** . . . The 1976 sweet cherry crop set a record that went unchallenged another year. Production dropped in 1977 by 15% to 147,100 tons. Of this total, 145,800 tons were used for processing and fresh consumption with utilization divided about evenly between the two. Growers earned more than $77 million on their product, up from $64.5 million a year ago, while per ton prices leaped to $530 compared with 1976's $384. Washington again was the Nation's largest producing State. Meantime, tart cherry output surged past last year's freeze-damaged crop by 45%. Producers brought in 213 million pounds and collected over 29¢ per pound, 4¢ above the 1976 price. Michigan's crop led the way with 162 million pounds.

**MEAT USE RISES** . . . Supplies of red meat and poultry should be plentiful well into 1978, says USDA's Economic Research Service. Current developments point to continued growth in pork and broiler production, with only modest reductions in total beef output. During the first half of this year, Americans ate record amounts of both red meat and broilers, with consumption of red meat topping 96 pounds a person, and broilers, over 20 pounds. For the entire year, red meat and broiler consumption could beat the 1976 record by 2 to 3 pounds a person.

**CAPS OFF** . . . Mushroom production zoomed to a record 347 million pounds during the crop year ended June 30, 1977. According to the Crop Reporting Board, this was 12% above the previous year, and continued the upward trend in production that has marked every year since SRS began its mushroom surveys in 1966. Pennsylvania growers provided nearly 200 million pounds, or roughly 57% of the output from the 24 States surveyed. The crop's value catapulted to nearly $256 million for a 34% gain over the 1975/76 tally. Producers averaged close to 74 cents a pound, 12 cents more than the year before. Fresh market sales climbed 6% to 44% of the total crop, while sales to processors advanced 17%. The nearly 118 million square feet of bed and tray areas used during the past crop year yielded 2.9 pounds per square foot. For 1977/78, forecasters point to 130 million square feet under cultivation.

**MORE TIME TO PAY** . . . Farmers building storage structures with funds from the USDA farm facility loan program will have 8 years instead of 5 to repay the loans. Department officials feel that with a longer repayment period, farmers should experience fewer cash flow problems. This decision followed some recent changes in the loan program such as lifting the loan ceiling from $25,000 to $50,000; basing storage needs on 2 years' production rather than 1; and reducing down-payments from 30% to 15% of the cost of structures and equipment. The program, which began nearly 30 years ago, is monitored by the Agricultural Stabilization and Conservation Service, and has provided more than $1 billion to assist farmers in putting up buildings with storage capacity totaling over 2.4 billion bushels.

**WATCH OUT, WEEVIL** . . . Early next year, cotton growers in Virginia, North Carolina, and parts of South Carolina will join with Federal and State officials in a trial program to eradicate the boll weevil. The program will combine biological, cultural, and chemical controls—working together in a manner that maximizes the pest control benefits of each technique, while minimizing any harmful environmental side effects. If successful, the project will be ready for expansion across the Cotton Belt, says USDA's Animal and Plant Health Inspection Service. An alien pest, the boll weevil entered the U.S. across the Texas border in 1892 and spread across southern cotton areas within three decades.

**WEATHER STINGS HONEY OUTPUT** . . . The estimated 1.8 million commercial bee colonies in the U.S. are expected to produce 101 million pounds of honey in 1977, about 8% below last year and 7% off 1975. Total colonies are down 1% from a year ago and are expected to average 55.3 pounds per colony compared with nearly 60 pounds in 1976 and 62 in 1975. Contributing to the decline were the unseasonably cold Florida winter, early summer dryness in most of the upper Midwest, and continued drought in California. Leading producers are North Dakota, California, and Minnesota.

**IMPORT DUTIES SHOW DOWNTURN** . . . Customs duties on agricultural imports averaged 3.3% in 1976, off 0.1% from the year before and down from 5.8% a decade ago. Imports brought in duties of $367 million on nearly $11 billion worth of goods. USDA's Economic Research Service reported that the duty-free value of farm products climbed sharply to a record $5.7 billion because of price hikes for many tropical products including coffee, cocoa, tea, rubber, and spices. The proportion of duty-free farm products grew to 52%, outdistancing 1975's 40% while chargeable agricultural imports declined in value to

$5.25 billion, the lowest level since 1973. The drop reflects lower prices, mainly for sugar, live cattle, meat, and vegetable oils, and an increase in items eligible for the Generalized System of Preferences—a program that reduces tariff rates to zero on many products from less-developed countries.

**TOBACCO TRADE** . . . World exports of unmanufactured tobacco showed a 3.4% gain last year reversing 1975's sharp decline. However, trade volume remained below the 1974 records, probably because of rising prices, increased concern about smoking and health, and tobacco's standing as a target for tax money. Slow growth in the smoking population has also hindered world trade. The U.S. continued as the world's largest tobacco exporter, but dropped from first to third in tobacco imports behind the United Kingdom and West Germany.

**HOP STOCKS COP RECORD** . . . Hops held by growers, dealers, and brewers reached a record 50.5 million pounds on September 1, edging ahead of year-ago holdings and topping the 1975 inventory by 20%. Brewers held the largest volume by far—48.5 million pounds. Hops in dry form represented 60% of the stocks while hops in pellet form continued to gain popularity at 27% of the inventory, up from 20% in 1976. Domestically grown hops amounted to 57% of the total stocks.

**SEED SHIPMENTS** . . . U.S. seed exports for the year ending June 30, 1977, carried a value of just over $148 million, up 19% over the previous year. Shipments of seed corn to the USSR accounted for a substantial share of the gain, and along with bigger exports of sorghum, bluegrass, clover, and fescue, more than offset declines in alfalfa and some other seeds. Canada remained the top market, with Mexico ranking second. On the strength of its large seed corn order, the Soviet Union jumped into the No. 3 spot ahead of Japan and France.

**FIGHTING THE ELEMENTS** . . . Insulate—that's the word coming from USDA's Farmers Home Administration (FmHA). New standards of energy efficiency for new and existing FmHA-financed housing have been set up for various climatic zones ranging from northern to southern sections of the country. The upgraded requirements effective March 15, 1978, will apply to many of the projected 100,000 home purchases expected to be financed by FmHA in fiscal 1978. All existing homes will be insulated as near the standard for new housing as is economically feasible. USDA established the new standards that include improved insulation, caulking, weatherstripping, and heating systems. In most cases, the added costs for energy conserving measures should be more than offset by savings in fuel costs. Details will be available from FmHA county offices.

# Statistical Barometer

| Item | 1975 | 1976 | 1977—latest available data | |
|---|---|---|---|---|
| **Farm Food Market Basket:**[1] | | | | |
| Retail cost (1967=100) | 174 | 175 | 180 | September |
| Farm value (1967=100) | 187 | 179 | 178 | September |
| Farmer's share of retail cost (percent) | 42 | 40 | 38 | September |
| **Agricultural Trade:** | | | | |
| Agricultural exports ($bil.) | 22 | 23 | 1.7 | September |
| Agricultural imports ($bil.) | 10 | 11 | 1.0 | September |
| **Farm Production and Efficiency:** | | | | |
| Farm output, total (1967=100) | 114 | 117 | 120 | October |
| Livestock (1976=100)[2] | 101 | 106 | 108 | October |
| Meat animals (1967=100) | 102 | 106 | 108 | October |
| Dairy products (1967=100) | 98 | 103 | 105 | October |
| Poultry and eggs (1967=100) | 103 | 110 | 111 | October |
| Crops (1967=100)[3] | 121 | 122 | 127 | October |
| Feed grains (1967=100) | 114 | 119 | 123 | October |
| Hay and forage (1967=100) | 108 | 102 | 106 | October |
| Food grains (1967=100) | 142 | 140 | 131 | October |
| Sugar crops (1967=100) | 131 | 131 | 117 | October |
| Cotton (1967=100) | 112 | 142 | 179 | October |
| Tobacco (1967=100) | 111 | 108 | 96 | October |
| Oil crops (1967=100) | 153 | 130 | 163 | October |
| Cropland used for crops (1967=100) | 108 | 109 | 110 | October |
| Crop production per acre (1967=100) | 112 | 112 | 115 | October |
| **Hogs and Pigs:** | | | | |
| Hogs and pigs on farms, Sept. 1 (mil.) | 41.5 | 48.8 | 50.1 | September |
| Kept for breeding (mil.) | 6.0 | 6.8 | 7.3 | September |
| Market (mil.) | 35.5 | 42.0 | 42.8 | September |
| Sows farrowing, Jun.-Aug. (mil.) | 2.1 | 2.5 | 2.8 | September |
| Pig crop, Jun.-Aug. (mil.) | 15.0 | 18.4 | 20.0 | September |
| Pigs per litter, Jun.-Aug. (number) | 7.2 | 7.3 | 7.2 | September |

[1]Average annual quantities per family and single person households bought by wage and clerical workers, 1960-61, based on Bureau of Labor Statistics figures.

[2]Gross livestock production includes minor livestock products not included in the separate groups shown. It cannot be added to gross production to compute farm output.

[3]Gross crop production includes some miscellaneous crops not in the separate groups shown. It cannot be added to gross livestock production to compute farm output.

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